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This is, in effect, the same paper published in the Botanical Gazette, Vol. xi., pp. 253-256, and 289-293, and noted in the BULLETIN, xii., p. 21.

Weed Statistics.—J. C. Arthur. (5th Ann. Rep. N. Y. Agric. Exp. Station, pp. 298-300.)

A list of weeds growing on one-twentieth of an acre is given, with their relative numbers in 1885 and 1886.

Botanical Notes.

We have received a circular from Henry Willey, of New Bedford, Mass., offering for sale his collection of Lichens and books. The various works and collections are specified and enumerated. The specimens are mostly mounted or in envelopes, and the New Bedford species are heavily duplicated. The whole is valued at \$2,000.

Les Lichens Utiles, par Dr. Felix Henneguy. Octave Doin, Paris, 1883. Octavo, pp. 114; 25 woodcuts.

The author gives us much more than the title would warrant us in expecting. Nearly half the book is devoted to the structure and biology of lichens. Then follow chapters on the chemistry of lichens, the uses to which lichens have been put, and the classification of lichens. The book closes with a detailed description of all species known to be of economic value. Many of the species are figured, and illustrations also appear in the structural part.

The economic part is of necessity chiefly a record of past uses, for very few lichens have held their own against modern substitutes; thus, of those which have been used in medicine, only one (*Cetraria Islandica*) is now officinal, and since the introduction of the aniline dyes, the once highly important tinctorial lichens have almost entirely gone out of use. The production of alcohol from lichen-starch, carried on to a considerable extent in Northern Europe, is one of the most important modern uses that are mentioned.

Not the least interesting portion of the book is the introductory half, and the general reader will find gathered here much valuable information. It must be said, however, that the views

expressed regarding the autonomy of lichens are those held by Nylander and the older school of lichenologists, and do not agree with beliefs most widely accepted to-day.

F. LE ROY SARGENT.

Botanical Federation in the West Indies. D. Morris (Nature, xxxv., pp. 248-250). This very interesting account of the efforts which have been made by several of the islands of the West Indies, notably Jamaica and Trinidad, to establish experimental gardens for the culture of various plants of botanical and economical value, is by the former director of the botanic gardens at Jamaica. Much encouragement and assistance has been given by Kew Gardens, and the movement has received a new impetus by the appointment of William Fawcett as Director of the Botanical Department of Jamaica, and of the transfer of John H. Hart to the Botanic Garden of Trinidad. Reports on the forests of Jamaica and St. Vincent have been published, and are valuable additions to the knowledge of West Indian timbers.

The Potato Tercentenary. (Garden, xxx., pp. 535-536. Nature, xxxv., pp. 175-176.) The exhibition was held December 2d-6th, 1886, William Carruthers presiding.

Mr. J. G. Baker, of Kew Gardens, contributed an interesting paper on "The Wild Species of the Potato as at Present Recognized." He stated that there are five distinct species of tuber-bearing *Solanums*, all natives of America, and expressed the wish that some one would undertake to monograph the tuberous *Solanums* in the same way that the genus *Crocus* has recently been monographed by Mr. George Maw.

Mr. Clements B. Markham contributed a valuable paper on "The Cultivation of the Potato by the Incas of Peru and other Andean Nations." It is impossible to do justice to the paper in a short abstract; but he stated that the original home of the Potato was the Cordilleras of the Andes, where it has been cultivated from time immemorial over an area of 3,000 square miles throughout the empire of the Incas of Peru and in Chili. Vocabularies reveal the fact that the ancient people of Bogota cultivated it, and had produced several varieties.

Mr. George Murray, of the British Museum, read a paper on

"The Character and Operation of the Potato Disease," illustrated by diagrams and specimens.

Dr. Masters treated of "The Production of Varieties by Cultivation," and explained the processes.

In the subsequent discussion a number of prominent gardeners took part.

On the Cultivation of the Fresh-Water Algæ. In the Report and Transactions of the Penzance Natural History and Antiquarian Society for 1885-86, Mr. J. Bernard Magor has an interesting paper on this subject. He remarks:—"The statement that the home-growth of Algæ enables their development to be studied carries with it its own justification. In these days the influence of the study of development in biological work of any kind is evident, and the importance of that study is attested by the constant succession of memoirs that are published, dealing with the development of all manner of creatures. Valuable information may be got in three ways from the cultivation of the Algæ: 1. The identification of species not at first noticed in the gathering. 2. The observation of various stages of development, and the elucidation thereby of the successive phases of the life history of a species. 3. The determination of the effects produced on any given species by changes in the conditions of its growth."

The development of *Chætophora pisiformis* is then described. It is stated that all authorities say that it is devoid of bristles, whereas, according to his experience, the young, shooting branches nearly all end in bristles. *Oscillaria princeps* was also studied, and some very curious phases of its growth were noted.

A Method for Retaining the Color of Plants Preserved in Alcohol. (Berichte der Deutschen Botanischen Gesellschaft, iv., No. 8.) Dr. Tschirch has discovered that tannates and coloring matters of plants, with the exception of Xanthophyll, form compounds with lead and barium which are insoluble in alcohol; therefore, he recommends the specimens to be put into solutions of compounds of lead or barium before transferring them to spirit, or simply to add concentrated solutions of acetate or nitrate

of lead, or chloride or hydrated oxide of barium to the spirit. The best results have been obtained by plunging the specimens first into boiling water before putting them into the above mentioned mineral solutions.

Anatomy and Physiology of Stinging Hairs. Dr. G. Haberlandt has examined the structure of the stinging hairs in a number of plants. The main features show a great uniformity in the multicellular base surmounted by the very large secreting cell. Below the silicified apex of the latter the cell wall is always very thin. The substance which gives the stinging properties to the fluid of the glands of the common stinging nettle is not, as has been generally supposed, formic acid, which could not produce the effect in such small quantities. Dr. Haberlandt states that the irritation must be produced by a fixed substance, since the dried contents of the gland will cause the ordinary effect of a nettle sting if introduced beneath the skin. He finds always in the fluid a substance which exhibits all the properties of an albuminoid. The substance which produces the inflammation is probably a compound of the nature of an unformed ferment.—(Journ. Roy. Mic. Soc., Dec., 1886.)

Lamarck's Herbarium. The authorities of the Jardin des Plantes have purchased this valuable collection from the University of Rostock, where it was practically inaccessible. The herbarium contains many type specimens which were described in the *Encyclopédie Methodique* (Nature).

Ramie Fibre. The cultivation of *Boehmeria nivea* was introduced in Spain in 1870, and a company known as the *Compagnie Ramie Française* are separating the fibre at less cost and of better quality than that of hemp or jute. The fabric produced is glossy and resembles pongee silk, and the refuse is used in the manufacture of paper.—(Gardener's Chronicle.)

Transpiration-Stream in cut Branches. (Proc. Cambridge Phil. Soc., V., pp. 330-367.) “Prof. F. Darwin and Mr. R. W. Phillips have repeated Dufour's experiments on the effect on transpiration of two opposite incisions in a branch. They find a general difference in the results between Angiosperms and Gymnosperms, as represented by *Helianthus* and *Taxus*. In the

former case transpiration is reduced to a minimum ; in the latter case it is not affected to any considerable extent by the opposite incisions. These facts are regarded by the authors as opposed to the imbibition theory, and as explicable only on the hypothesis that the movement takes place in the cell-cavity. In the Coniferæ the water can still move from tracheid to tracheid notwithstanding the incisions; while in Angiosperms, all the vessels being cut, the conduction is rendered difficult."—*Jour. Roy. Mic. Soc.*, Dec., 1886, pp. 1017, 1018.

Note on Sponia micrantha. *Sponia micrantha*, Decaine, is now *Trema micrantha*, B. & H., and under this name is No. 2543* of Curtiss' distribution. These are good flowering specimens, while Dr. Garber's are better for the pistillate flowers, and fruit.

WM. M. CANBY.

The Genus Pedicularis in Europe. In recent numbers of the *Botanisches Centralblatt*, Hans Steininger gives descriptions of all the European species and varieties of this genus at present known.

Proceedings of the Club.

The regular monthly meeting was held Feb. 8th, 1887, the President in the chair and twenty persons present. The following were elected active members:—Miss Elizabeth Jarrett, Rev. L. H. Lighthipe and Mr. E. A. Schultze.

Mr. Geo. E. Briggs, Model School, Trenton, N. J., was elected a corresponding member.

The Librarian distributed the printed list of members of the Club.

Mr. F. J. H. Merrill exhibited and remarked on plants collected in southern Florida and in Collin and Robertson Counties, Texas, in the spring of 1886. Among those collected on Key West, March 10th, were *Sida carpinifolia*, L., *Hypericum fasciculatum*, Lam., var. *aspathaloides*, Chapm., *Ageratum littorale*, Gray, *Ambrosia hispida*, Michx., *Bidens leucantha*, DC., *Tournefortia gnaphaloides*, R. Br., *Solanum Blodgettii*, Chapm., *Salvia serotina*, L., and *Euphorbia trichotoma*, HBK.

At Tampa, Florida, were obtained *Vicia acutifolia*, Ell., *Iris hexagona*, Walt., and *Tillandsia recurvata*, Pursh.